ALEKSEYEV, S.M.; BOL'SHOV, V.M.; VITKOV, M.G.; GUKIN, V.I.; IVANOV, V.M.; MALININ, R.M.; PILTAKYAN, A.M.; PLENKIN, Yu.N.; SOBOLEVSKIY, A.G.; BURLYAND, V.A., red.; BORUNOV, N.I., tekhn. red.

[Handbook for beginning radio amateurs] Spravochnik nachinaiushchego radioliubitelia. Pod obshchei red. R.M.Malinina. Izd.2., stereotipnoe. Moskva, Gosenergoizdat, 1963. 623 p. (Massovaia radiobiblioteka, no.400) (MIRA 16:5)

(Radio--Handbooks, manuals, etc.)
(Radio operators--Handbooks, manuals, etc.)

BOL'SHOV, V., inzh.

Low-frequency amplifiers. Radio no.4:31-34 Ap '63.
(MIRA 16:3)
(Amplifiers, Electron-tube)

BOL'SHOV, V., inzh.

Detection and detector circuits. Radio no.3:32-36 Mr '63.
(MIRA 16:2)
(Radio detectors)

FILATOV, Igor' Semenovich; BOL'SHOV, V.M., red.

[Two-channel low-frequency amplifier and acoustical system] Dvukhkanal'nyi usilitel' nizkoi chastoty i zvukovaia kolonka. Moskva, Energiia, 1965. 14 p. (Massovaia radiobiblioteka, no.564) (MIRA 18:3)

L 34809-66

ACC NR: AP6021803 SOURCE CODE: UR/0413/66/000/012/0072/0072

INVENTOR: Bol'shov, V. M.; Pomel'tsov, A. N.; Smirnov, V. I.

ORG: none

TITLE: Device for the contactless investigation of the pooling of blood in organs and vessels. Class 30, No. 182847

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 12, 1966, 72

TOPIC TAGS: blood sensor, human physiology, animal physiology, blood circulation, hemodynamics, hemodynamic sensor, PLETHYSMOGRAPHY

ABSTRACT: An Author Certificate has been issued for a device used to study the pooling of blood in organs and tissues. It consists of a housing, high-frequency

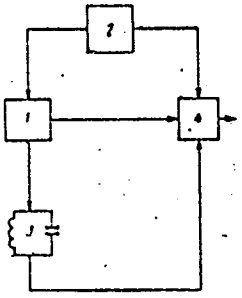

Fig. 1. Block diagram of device

1 - High-frequency generator; 2 - power source; 3 - sensor; 4 - Q-measuring circuit.

Card 1/2 UDC: 615.471.621.38:612.14

shape. The synchronized generator is represented by a blocking generator, while a diode-transformer comparator performs the functions of pulse generation and pulse comparison. The process of synchronization is explained, and formulas describing zones of synchronization are developed. Two experimental circuits designed along the above lines were tested with these results: (1) An electron-tube circuit ensured a maximum division ratio of 50—70, with a supply-voltage variation of ± 20% and a synchronizing-pulse frequency of 75 kc; (2) A transistorized circuit exhibited a maximum division ratio of 40, with the same ± 20% voltage variation and a temperature variation of + 20 +75C. Orig. art. has: 9 figures, 26 formulas, and 1 table.

SUB CODE: 09 / SUBM DATE: 08Apr64 / ORIG REF: 002

BOLSHOV, V.P., Cand Tech Sci--(diss) "~~Summarization~~ Generalization of experimental data on the viscosity and heat conductivity of water vapor." Kazan', 1958. 10 pp with graphs (Min of Higher Education USSR. Kazan' Chemico-Technological Inst im S.M. Kirov), 150 copies (KL,30-58, 126)

26(6) PHASE I BOOK EXPLOITATION SOV/1826

Akademiya nauk SSSR. Energeticheskiy institut

Teploperedacha i teplovoye modelirovaniye (Heat Transfer and Modeling of Heat Processes) Moscow, Izd-vo AN SSSR, 1959. 419 p. Errata slip inserted. 3,500 copies printed.

Resp. Ed.: M. A. Mikheyev, Academician; Ed. of Publishing House: D. A. Ivanova; Tech. Ed.: O. M. Shevchenko.

PURPOSE: The book is intended for scientists concerned with heat transfer, heat emission, and hydraulics of liquid metals, etc.

COVERAGE: This collection is dedicated to the memory of Academician M. V. Kirpichev who in the twenties initiated a systematic investigation of heat transfer processes and the efficiency of heat apparatus. Later he led the development of research work in this field. Two special collections devoted to works of Kirpichev's school have been published, one in 1938, Materialy soveshchaniya po modelirovaniya (Materials of the Conference on Modeling) and in 1951, Teoriya podobiya i modelirovaniye (Theory of Similitude and Modeling). The present collection prepared in 1956 represents further development of the work of this school. This theory is fundamental for the analysis of many heat problems in the field of electrical and radio engineering. Of great importance are the hydraulics of liquid metals which as a new kind of heat carrier may be used in the various branches of modern engineering. As a result of special investigations of some cases of convective heat transfer, a dependence of the process on the kind of liquid, temperature, pressure, direction of the heat flow, and other factors, was discovered and established. On the basis of wide generalization of experimental data, new dependable recommendations for heat analysis of engineering equipment were developed. Of no less interest is the work on heat transmission in boiling liquids and the condensation of vapors. All investigations are based on the theory of similitude, the nature of which according to M. V. Kirpichev, is that of "experimentation." Work on the theory of a regular regime applied to a system of bodies with an internal source of heat is of interest for the future.

Card 2/20

Usmanov, A. G. On One Supplementary Condition of Similarity of Molecular-Kinetic Processes 298

One supplementary condition of similarity of molecular processes was established consisting of the requirement of identity of density fields of the probability distribution. Similarity equations describing the kinetics of molecular processes of transfer were established. Experimental data on viscosity and heat conductivity of gases are generalized. There are 13 references: 10 Soviet and 3 English.

Card 16/20

Heat Transfer (Cont.) SOV/1826

Usmanov, A. G., and V. P. Bol'shov. Generalization of Experimental Data on the Viscosity and Heat Conductivity of Steam 313

This generalization depends on the knowledge of coefficients of heat conductivity λ and of the dynamic viscosity μ. The average values of these coefficients are determined by graphs $\mu = f(t)$ and $\lambda = f(t)$ drawn according to experimental data for various pressures. The method described was verified on the example of a wide range of temperatures and pressures of steam. The generalized relations may be used to increase knowledge of heat conductivity and viscosity coefficients of steam without further experiments. D. L. Timrot and N. B. Vargaftik are mentioned in relation to experimental data and the equation of μ. There are 5 references: 4 Soviet and 1 English.

107-57-3-23/64

AUTHOR: Bol'shov, Yu.

TITLE: Power Supply of an Antensifier. Experience exchange. (Pitaniye antennogo usilitelya. Obmen opytom)

PERIODICAL: Radio, 1957, Nr 3, p 19 (USSR)

ABSTRACT: Utilization of the antenna co-axial line is recommended for bringing the 6.3 volt 50 cps heater supply to an antenna amplifier. A simple circuit diagram shows additional capacitors and choke coils necessary for the separation of frequencies. A "UPT-2" attachment as an antensifier was tested with a "T-2" TV set; no interference attributable to the power supply was observed on the screen.
There is one figure in the article.

Card 1/1

PADALKA, Ye., tekhnik-leytenant; BOL'SHOV, Yu., mladshiy serzhant

Radio-controlled imitator of a target. Voen. vest. 38 no. 6:70-72 Je '58. (MIRA 11:7)

(Military art and science)
(Night fighting(Military science))

BOL'SHOV, Vladimir Mikhaylovich; BOL'SHOV, Yuriy Mikhaylovich; PETROV, V.A., red.; VORONIN, K.P., tekhn.red.

[Simple designs for the beginning radio amateur] Prostye konstruktsii nachinaiushchego radioliubitelia. Moskva, Gos. energ.izd-vo, 1959. 71 p. (Massovaia radiobiblioteka, no.346). (MIRA 13:6)

(Radio--Receivers and reception)

8(2), 9(4)

05391
SOV/107-59-8-11/49

AUTHOR: Bol'shov, Yu.

TITLE: Measuring Probes With Semiconductors

PERIODICAL: Radio, 1959, Nr 8, pp 14 - 15 (USSR)

ABSTRACT: The author described the application of DG-Ts diodes in measuring probes for tube voltmeters. He shows three circuits for connecting a DG-Ts27 diode. In Figure 2, a diagram of such a measuring probe is shown. There are 3 circuit diagrams and 1 diagram.

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PHASE I BOOK EXPLOITATION SOV/4600

Bel'shov, Yuriy Mikhaylovich

Ekonomichnyy priyemnik na tranzistorakh (Economical Transistor Radio) Moscow. Gosenergoizdat, 1960. 31 p. (Series: Massovaya radiobiblioteka, vyp. 371) 110,000 copies printed.

Editorial Board: A.I. Berg, F.I. Burdeynyy, V.A. Burlyand, V.I. Vaneyev, Ye.N. Genishta, I.S. Dzhigit, A.M. Kanayeva, E.T. Krenkel', A.A. Kulikovskiy, A.D. Smirnov, F.I. Tarasov, and V.I. Shamshur; Ed.: L.Ye. Levitin; Tech. Ed.; K.P. Voronin.

PURPOSE: This booklet is intended for the radio amateur.

COVERAGE: The booklet describes the construction of a homemade, economical transistorized straight receiver, which is recommended for the radio amateurs residing in areas without electrification. The receiver can be assembled from common standard components, and its circuit diagram is comparatively simple. No personalities are mentioned. There are no references.

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Economical Transistor Radio SOV/4600

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AVAILABLE: Library of Congress (TK6564.T7B6)

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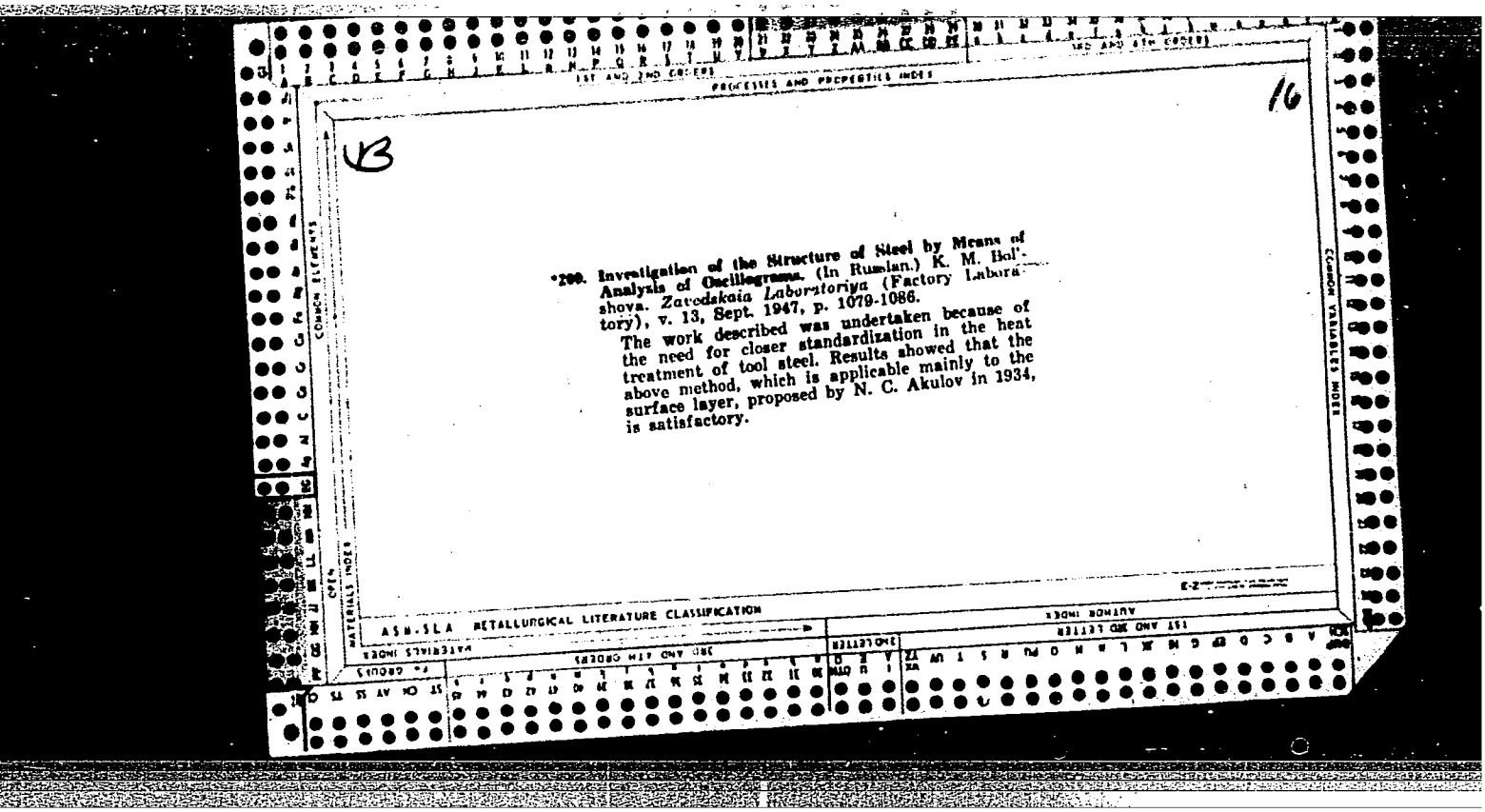
JP/rsm/gmp
12-16-60

PCHELIN, V.A.; IZMAYLOVA, V.N.; BOL'SHOVA, G.P.

Effect of benzene solubilization on the catalytic properties of pepsin. Dokl. AN SSSR 142 no.4:950-953 F '62. (MIRA 15:2)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova. Predstavleno akademikom P.A.Rebinderom.

(Pepsin)
(Benzene)
(Solubility)



*200. **Investigation of the Structure of Steel by Means of Analysis of Oscillograms.** (In Russian.) K. M. Bol'shova. *Zavodskaia Laboratoriya* (Factory Laboratory), v. 13, Sept. 1947, p. 1079-1086.

The work described was undertaken because of the need for closer standardization in the heat treatment of tool steel. Results showed that the above method, which is applicable mainly to the surface layer, proposed by N. C. Akulov in 1934, is satisfactory.

BOL'SHOVA, K. M.

Akulov, N. S., Blokhina, O. I., Bol'shova, K. M., and Chernova, A. P. Investigation of the constant of the anistropy of energy in triple alloys of the system Ni-Cu-Mo. P 855

The constant of anistropy for the triple system Ni-Cu-Mo changes as the amount of copper and molybdenum are increased.

Scientific Research Inst. of Physics, Moscow State University
July 7, 1948

SO: Journal of Technical Physics (USSR) 19, No. 8, (1949)

CA

9

The law of approximation to saturation in carbon steels. N. S. Akulov and K. M. Bol'shova. *Vestnik Moskov Univ. Nauk* No. 6, 79–80 5, No. 9, *Ser. Fiz.-Mat i Estestven.* (1950).—The region in which tempered C steels approach satn. corresponds to the interval of fields 600–1500 oersteds and can be described by the formula: $x = (A/H^2) + (B/H^3) + x_\beta$. In this law the 1st term has a very high wt. for steels. In the tempered state the 1st term exceeds the 2nd by several times. This means that in the law for the approach to satn. for martensite, the term A/H^2 is of major importance. On the other hand, for homogeneous alloys, even in the cold-worked state, the term B/H^3 is of major importance in the law for the approach to satn. Another difference between the approach to satn. of C steels and homogeneous alloys is that for tempered martensite of high-C steels, the coeff. B has a neg. sign. The appearance of a neg. sign for B and a very large value of the coefficient A for martensite is explained by the action of strains within it. J. R. L.

BOL'SHOVA, K. M.

T A 175T59

USSR/Metals - Martensite 1 Apr 50

"Law of Approximation to Saturation for Martensite," N. S. Akulov, Act Mem, Acad Sci Belorussian SSR, K. M. Bol'shova, Inst Phys, Moscow State U imeni Lomonosov

"Dok Ak Nauk SSSR" Vol LXXI, No 4, pp 633-636

Considers coeff A, B, C in gen formula for susceptibility $K = I/H = k_p + A/H^2 + B/H^3 + C/H^4$. Graphs of K vs H (up to 1,400 oersteds) for various percentages of carbon. Also A, B, C vs T (Up to 300°C) for various carbon contents (up to 1.12% C). Submitted 6 Feb 50.

175T59

BOL'SHOVA, K.M.

"Investigating the Effect of Heterogeneity and Internal Stresses on Magnetism in Strong Fields of Alloys With an Iron Base." Sub 21 Nov 51, Moscow Order Lenin State U imeni M.V. Lomonosov, for degree Cand. Physicomathematical Sci.

Dissertations presented for science and engineering degrees in Moscow during 1951.

SO:Sum. No. 480, 9 May 55

BOL'SHOVA, K. M.

USSR/Physics - Magnetization Oct 52

"Investigation of Magnetization of Heterogeneous Alloys Fe-W and Fe-Cu in Strong Fields," K. M. Bol'shova, Magnetic Lab, Sci-Res Inst of Phys

"Vest Moskov U, Ser Fiz-Mat i Yest Nauk" No 7, pp 63-69

PA 243T100

State that subject investigation is of independent interest since it permits one to trace the influence of small additions of a nonmagnetic component on the behavior of the anisotropy constants of subject alloys. Verifies the usual law of susceptibility $k = A/H^2 + B/H^3 + k$ in the case of transition to saturation. States that an extra term C/H^4 is sometimes needed. Submitted 23 Feb 52.

243T100

BOL'SHOVA, K. M.

Magnetism

Effect of heterogeneity and inner tensions on the magnetism of alloys with an iron base in strong fields, Izv. AN SSSR, Ser. fiz. 16, No. 5, 1952

Monthly List of Russian Accessions, Library of Congress, June 1953, Uncl.

BOL'SHOVA, K. M.

USSR/Physics - Magnetization Sep 52

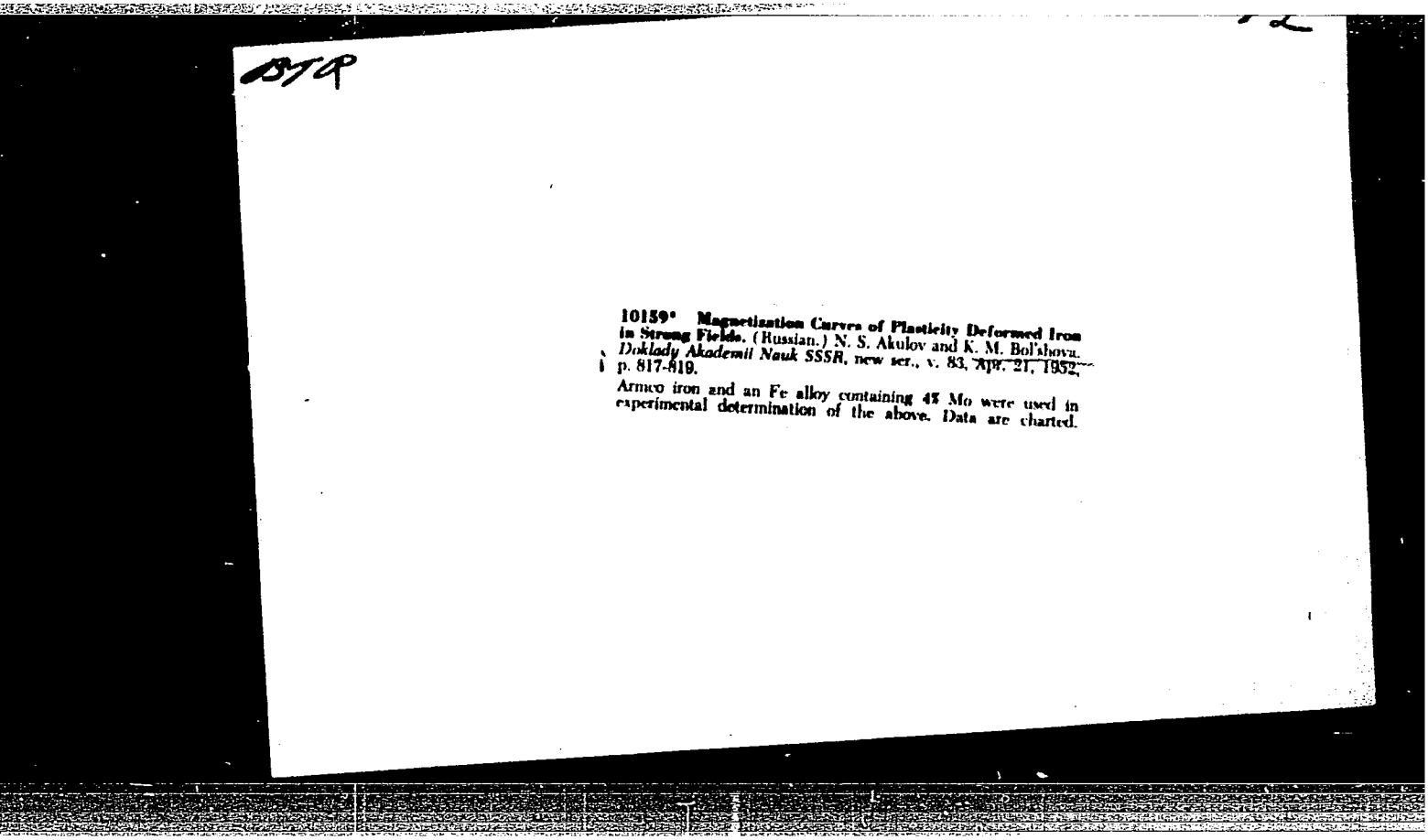
"Magnetization of Heterogeneous Materials in Strong Fields," K.M. Bol'shova, Moscow State U

"Zhur Eksper i Teoret Fiz" Vol 23, No 3, pp 349-356

PA 227T90

Investigates experimentally the behavior of magnetization of ferromagnetic materials in strong magnetic fields. Shows that in agreement with theoretical assumptions the term A/H^2 entering the expression for susceptibility in the law governing approach to satn appears in Fe-Mo alloys during passage beyond limits of soly; that is, when nonmagnetic inclusions occur in the structure of the sample. States that the lst coeff A is larger the larger the inclusions in the material. Thanks Prof N.S. Akulov, who proposed this theme.

227T90



10159* **Magnetization Curves of Plasticity Deformed Iron in Strong Fields.** (Russian.) N. S. Akulov and K. M. Bol'shova. *Doklady Akademii Nauk SSSR*, new ser., v. 83, Apr. 21, 1952, p. 817-819.

Armco iron and an Fe alloy containing 4% Mo were used in experimental determination of the above. Data are charted.

BOLSHOVA, K.M., LOKINA, T.A., BELOV, K.P

"The Study of Magnetization of Ferrites in the Region of the Curie Point" (Moscow)

Conference on Physics of Magnetic Phenomena,
May 1956, Sverdlovsk, USSR

BOLSHOVA, K. M., BELOV, K. P., and YELKINA, T. A., (Moscow)

"The Study of Magnetization of Ferrites in the Region of the Curie Point," a paper submitted at the International Conference on Physics of Magnetic Phenomena, Sverdlovsk, 28-31 May 56.

Anomalous magnetic properties of manganese zinc ferrites near the Curie temperature. K. M. Borshova and T. A. Elkina. *Vestnik Moskov. Univ. 12, Ser. Mat., Mekh., Astron., Fiz., Khim.* No. 2, 95–101(1957).—All studies on ferromagnetic materials show that on going to higher temps. the remanent magnetism gradually decreases, reaching 0 at the Curie temp. It would naturally be assumed that the coercive force (H_c) necessary to overcome remanent magnetism, would also become 0 at the same point at which the remanent magnetism disappeared, but this seems not to be the case. With ferrites, made by sintering Fe_2O_3 with bivalent oxides, i.e., $RO.Fe_2O_3$, the H_c curve follows the decrease in magnetization with rising temp., but when the Curie point is nearly reached, H_c takes a sudden turn upwards. This is shown by plots of H_c and remanent magnetism in the same diagram, for ferrites with 50% Fe_2O_3, MnO, 23–40%, ZnO, 10–27.5%, and with 50% Fe_2O_3, 20–30% ZnO, and 30–20% CoO. With ferrites, this behavior of H_c is most marked when there is more O in the sintering furnace. This does not, however, explain the similar behavior of the H_c for the 2 alloys 50% Ni-50% Fe and the Mo permalloy 78.5% Ni and 3% Mo cited by [illegible] and E.

V. H. Gottschalk

48-8-2/25

AUTHORS: Belov, K.P., Bol'shova, K.M., Yelkina, T.A.

TITLE: Investigation of Ferrites in the Vicinity of the Curie-Point (Issledovaniye namagnichivaniya ferritov v oblasti tochki Kyuri)

PERIODICAL: Izvestiya AN SSSR, Seriya Fizicheskaya, 1957, Vol. 21, Nr 8, pp. 1047 - 1054 (USSR)

ABSTRACT: The paper under consideration deals with the magnetization processes of some ferrites in order to determine the temperature change on spontaneous magnetization near to the Curie point. It is maintained here, that such data are missing in literature, although they are of great importance, because the mechanism of ferromagnetic phenomena in ferrites are different from ferromagnetic metals. The sections of the paper are headed:
1.) Samples and methods: 7 samples of Mn-Zn ferrites with a varying MnO content (20 ÷ 40 %) and 2 ferrites of Co-Zn alloy were selected. The measuring of the magnetization curves was executed according to the ballistic method. The samples were magnetized in a solenoid with a field strength of 2500 Oe. A ballistic differential winding, consisting of two sections of

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4500 spires each on an ebonite body, was mounted on the electric furnace containing the sample. For calibration a one-layer winding of thin wire was prepared, which was wound on a body of the identical form and size as the sample. By introducing this winding instead of the sample calibration was effected. 2.) The curves of actual magnetization of ferrites near the Curie point: Here it is established, that in this case the well-known thermodynamical equation $\alpha + \beta\sigma^2 = -\frac{H}{\sigma}$ is applicable, σ denoting the specific magnetization and α, β thermodynamical coefficients. The conclusion is drawn, that the sequence of the values of the para-processes of ferrites under investigation corresponds to the sequence of ferromagnetic metals. The theoretic relation between the intensity of the paraprocess and the value of the Curie point is stated here as follows: The lower the Curie point, the weaker is the interaction and the higher the effect of the excitation of the external field, implying a higher intensity of the paraprocesses. 3.) The reaction of Mn-Zn ferrites in weak fields near to the Curie point: Here the magnetic anomalies are described, of which allegedly no data are to be found in literature. These data consist of the fact, that the final magnetiza-

tion of the above-mentioned Mn-Zn ferrites, starting from low temperatures, first decreases at the approach of the Curie point, starts to grow just before reaching the Curie point, and finally falls off after reaching a certain maximum. The coercive force behaves similarly, which, in some cases, shows a very accentuated rise from the minimum to the maximum. These anomalies can be reproduced also, if the samples are isolated from the influence of air. No anomalies of this kind were found in Co-Zn ferrites. There are 9 figures, 1 table and 7 references, 5 of which are Slavic.

ASSOCIATION: **Dept. of Physics** of the Moscow State University imeni M.V. Lomonosov
(Fizicheskiy fakultet Moskovskogo gos. universiteta im. M.V. Lomonosova)

AVAILABLE: Library of Congress

24(3)

Author: D'yakov, G.P., Candidate of Physical-Mathematical Sciences SOV/55-58-2-34/35

TITLE: Survey of Papers Read by Scientists of Moscow University at the All-Union Congress on the Physics of Magnetic Materials (Obzor dokladov uchenykh moskovskogo universiteta na vsesoyuznom soveshchanii po fizike magnitnykh materialov)

PERIODICAL: Vestnik Moskovskogo Universiteta.Seriya matematiki, mekhaniki, astronomii, fiziki, khimii, 1958, Nr 2,pp 247-250 (USSR)

ABSTRACT: From December 6 - 11,1957 there took place the fourth Union Congress on physics of magnetic materials in Leningrad. (The first two meetings took place 1946 and 1951 in Sverdlovsk, the third meeting 1956 in Moscow). The congress was organized by : Academy of Sciences of the USSR, Department of Physical-Mathematical Sciences, Scientific Council on Fundamental Problems of Magnetism, Institute for Semiconductors of the Academy of Sciences, USSR and Committee for Magnetism. There were more than 300 participators, 53 lectures were given, among them the following lectures of the representatives of the Moscow State University :

1. Professor R.V. Telesnin, Ye.F. Kurityna, Lecturer "On the Velocity of Magnetic Reversal of the Ferromagnetics".
2. Professor R.V. Telesnin, Ye.V. Karchagina, Assistant "On Magnetic Viscosity of Ferrites".
3. Professor R.V. Telesnin, V.G. Shishkov, Aspirant "Effect of Magnetic Viscosity on the Frequency Characteristics of Ferrites".
4. N.V. Degtyar, Lecturer "Variations of Structure and Anti-ferromagnetic Properties of Ni_3Fe".
5. N.A. Grabovskiy, Lecturer, S.Yu. Broiskaya, Junior Scientific Assistant "Magnetic Properties of Anisotropic Stones".
6. G.P. D'yakov, Lecturer "Magnetostriction Properties of Binary Alloys".
7. Professor Ye.I. Kondorskiy, L.V. Sobolev, Assistant "Electric Properties of Ni-Zn-Ferrites".
8. N.Z. Miryasov, Senior Scientific Assistant, A.P. Paganov, Aspirant "Magnetic Properties and Structure of Manganese - Boron - Alloys".
9. N.A. Smol'kov, Senior Scientific Assistant, B.P. Belov "Some Properties of Ferrites".
10. N.A. Smol'kov, Senior Scientific Assistant, Yu.P. Simanov, Lecturer "Properties of Ni Fe_2O_4 - Mg Fe_2O_4 ".
11. N.A. Smol'kov and Ye.I. F[illegible], Engineer "Properties of Ferrites in the High-Frequency Range".
12. Professor K.P. Belov, K.M. Bol'shova, Lecturer, T.A. Yelkina, Lecturer, and [illegible], Junior Scientific Assistant "Ferrites With Compensation Point".
13. K.P. Belov, Ye.V. Talalayeva, Assistant "Electric and Galvanomagnetic Properties of the Manganese Ferrites".
14. V.A. Timofeyeva, Junior Scientific Assistant, A.V. Zalesskiy "Production of Monocrystals of Ferrites".
15. Professor K.P. Belov, A.V. [illegible], Junior Scientific Assistant "On Galvanomagnetic Properties of Ferromagnetic Alloys Near the Absolute Zero of Temperature".

The participators of the meeting visited a laboratory of the Institute of Semiconductors of the Academy of Sciences of the USSR (Professor [illegible]).

The meeting was concluded by Professor [illegible], Corresponding Member, Academy of Sciences, USSR with the [illegible] to the following [illegible] Congress planned for 19[illegible].

1. Magnetic Resonance and Galvanomagnetic Effects in Kazan'.
2. Ferromagnetic [illegible] [illegible] in [illegible].
3. [illegible] Structure of the Ferromagnetics and [illegible] Effects [illegible].

AUTHORS: Belov, K. P., Bol'shova, K. M., Yelkina, T. A., Zaytseva, M. A. SOV/48-22-10-23/23

TITLE: On Magnetic Properties of Ferrites Exhibiting a Compensation Point (O magnitnykh svoystvakh ferritov s tochkoy kompensatsii)

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1958, Vol 22, Nr 10, pp 1282 - 1292 (USSR)

ABSTRACT: In the present paper the authors performed exact measurements of the magnetic properties of mixed lithium chromite ferrites (which were annealed and hardened) in the case of different annealing after hardening. For the investigation a system of ferromagnetic lithium spinels that contained chromium of the common formula

$$Li_2O \cdot (5 - 2a)\ Fe_2O_3 \cdot 2a\ Cr_2O_3 \quad (\text{for } a = 1{,}25;\ 1{,}5;\ 1{,}6;\ 1{,}7)$$

was synthetized. The following magnetic characteristics were investigated: 1) Temperature dependence of the spontaneous magnetization of $\sigma_s(T)$; 2) magnetic moments of the atoms (the measurements were carried out by A. V. Ped'ko); 3) temperature dependence of the residual magnetization of

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the limiting cycle in the temperature range of from -30° to about 10 to 20° above the compensation point (by the astatic magnetometer); 4) temperature dependence of the paramagnetic sensitivity (according to the ponderomotive method). The measuring results showed that the ferromagnetic spinels Li FeCr in a certain range of solution exhibit an anomalous shape of the curve $\sigma_s(T)$ with a compensation point. This has been predicted by Neel. In contrast to the theory it was found that the compensation never was perfect. The phenomenon of an imperfect compensation may be explained by the heterogeneity of the samples. An other considerably greater difference is that the value of the absolute saturation computed (according to Neel) from the distribution of the cations does not agree at all with data found experimentally (Table 2, column 3 and 5). The modification of Neel's theory suggested by Yafet and Kittel (Ref 8) is capable of explaining this discrepancy qualitatively. The explanation is as follows: As the measured value of the magnetic value in these ferrites is lower than the value computed according to Neel's theory and $M_B > M_A$, in this case the negative exchange

interaction within the sublattice B compared with the interaction between the sublattices A and B must not be neglected. The measurements showed that the value of the absolute saturation in the system LiFeCr-ferrites becomes higher in the case of hardening. In technical publications there are data on the influence of hardening upon σ_o of various simple and composed ferrites (Refs 10 and 11) and theories (Refs 12 - 14) explaining the results of the papers (Refs 10 and 11). According to this σ_o depends on the distribution of the cations on A and B. This distribution, however, depends on the temperature. In the present case the problem became more complicated as apart from the cation distribution also the variation of the angles between the magnetic moments in sublattices was possible. The possible influence of these two factors excludes a comparison of the experimental values found of saturation in hardening with respective theories. The question of the influence of these factors probably might be answered by means of radiographic and especially neutronographic investigations. The authors express their gratitude to K. G. Khomyakov and T. I. Bulgakova

for valuable suggestions. There are 10 figures, 3 tables, and 14 references, 4 of which are Soviet.

ASSOCIATION: Fizicheskiy fakul'tet Moskovskogo gos.universiteta imeni M. V. Lomonosova (Dept. of Physics at the Moscow State University imeni M. V. Lomonosov)

USCOMM-DC-60,966

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AUTHORS: Bol'shova, K. M., Yelkina, T. A. S/055/59/000/04/008/026
B014/B005

TITLE: The Anomaly of the Coercive Force of Ferrites in the Compensation Point

PERIODICAL: Vestnik Moskovskogo universiteta. Seriya matematiki, mekhaniki, astronomii, fiziki, khimii, 1959, Nr 4, pp 85 - 90 (USSR)

ABSTRACT: Ferromagnetic spinels of the composition $Li_2O(5 - 2a)Fe_2O_3 \cdot 2aCr_2O_3$ with $1 \leq d \leq 2$ have the characteristic property that their spontaneous magnetization changes to zero not only at Curie temperature but also at lower temperatures. This temperature is called compensation point in which an equilibrium of magnetic moments of the sublattice may be observed. Experiments carried out by the authors (Ref 3) showed that an anomalous change of the coercive force of these ferrites is found in the temperature range of the compensation point and of Curie temperature. The authors give two reasons for the fact that a slight spontaneous magnetization can be ascertained at compensation point: 1) Slight fluctuations in the chemical composition. 2) Heterogeneous cation distribution in the spinel lattice. A discussion of the possible causes of the turn

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about of spontaneous magnetization leads to the conclusion that the coercive force increases with increasing approach of the temperature to compensation point, reaching a maximum at this point. To check this assumption, the authors carried out experiments to determine the temperature dependence of coercive force, of spontaneous magnetization, and of remanent magnetization. In all compositions and heat treatments it was shown that the coercive force passes a distinct maximum in the range of the compensation point which seems to confirm the original assumption of an anomalous temperature course of the coercive force in the range of the compensation point. An analysis of the data obtained (which are to clarify the causes of the anomalous behavior of coercive force) shows that with the approach of temperature to the compensation point the magnetization curve flattens more and more, which suggests an increasing influence of the rotary mechanism on the magnetization of ferrites. Table 2 shows that in hardened ferrites the difference between Curie and compensation temperature becomes smaller, which suggests that hardened ferrites have a lower anisotropic constant than annealed ferrites. There are 5 figures, 2 tables and 6 references, 4 of which are Soviet.

69004

The Anomaly of the Coercive Force of Ferrites in the Compensation Point

S/055/59/000/04/008/026
B014/B005

ASSOCIATION: Kafedra obshchey fiziki (Chair of General Physics)

SUBMITTED: October 27, 1958

Card 3/3

SOV/126-8-3-24/33

AUTHORS: Bol'shova, K.M. and Yelkina, T.A.

TITLE: Increase in Coercive Force of Mixed Cast Ferrites and Chromites in the Compensation Temperature Range

PERIODICAL: Fizika metallov i metallovedeniye, 1959, Vol 8, Nr 3, pp 461-463 (USSR)

ABSTRACT: Ferro-magnetic spinels, the composition of which is described by the formula $Li_2O \times (5-2a)Fe_2O_3 \times 2aCr_2O_3$, in the range of a = 1 to a = 2, are characterized by the fact that their spontaneous magnetization is reduced to zero not only at the Curie temperature but also at a lower temperature at the so-called compensation point (Ref 1 and 2). The authors have carried out a thorough experimental investigation of the temperature course of spontaneous magnetization of the above materials in the compensation and Curie temperature range (Ref 3). An analysis of these results has led to the conclusion that an increase in H_c of these ferrites must occur in the compensation range T_k, which is associated with a sharp decrease in magnetization as the testing temperature approached T_k. The figure on p 462 shows the temperature dependence of the magnetic properties of the ferrite

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Increase in Coercive Force of Mixed Cast Ferrites and Chromites in the Compensation Temperature Range

$Li_2O \times 2.5Fe_2O_3 \times 2.5Cr_2O_3$ in the compensation temperature range: 1 - temperature dependence of the coercive force; 2 - temperature dependence of the spontaneous magnetization $\sigma_s(t)$; 3 - temperature dependence of residual magnetism created at any given temperature $\sigma_r'(t)$; 4 - temperature dependence of residual magnetism created at room temperature $\sigma_r(t)$. Earlier obtained magnetization curves for ferrites of the system LiFeCr become more sloping as the compensation temperature is approached, which points to the gain in prominence of the role of the mechanism of rotation in ferrite magnetization processes. There are 1 figure and 4 references, 2 of which are Soviet and 2 Western.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova (Moscow State University imeni M.V.Lomonosov)

SUBMITTED: October 10, 1958

24.2200 (1137, 1144, 1164)
15.2660

30078
S/048/61/025/011/024/031
B117/B102

AUTHORS: Bol'shova, K. M., and Yelkina, T. A.

TITLE: Viscosity and hysteresis properties of ferrites due to electron diffusion

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 25, no. 11, 1961, 1407-1410

TEXT: The following ferrites were examined: no. 1) $Mn_{1.4}Fe_{1.6}O_4$; no. 2) $Mn_{1.35}Co_{0.05}Fe_{1.6}O_4$; no. 3) $Mn_{1.8}Fe_{1.2}O_4$; no. 4) $Mn_{1.75}Co_{0.05}Fe_{1.2}O_4$. Magnetic viscosity which appears between 1 and 250 oe was measured in static magnetic fields between +20 and -200°C. In some cases magnetic viscosity exerted a strong effect upon magnetic reversal: Though field direction was changed, the ferrite remained magnetized for several hours in the former direction. This effect, up to now unknown, was found to be particularly strong in a certain low-temperature range as well as in weak and medium magnetic fields. Specimen no. 4 displayed the greatest delay of magnetic reversal. For no. 1 and no. 3 viscosity was lower and

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Viscosity and hysteresis...

appeared also in weaker fields. In such fields, a-c hysteresis loops (50 cps) were recorded by an oscilloscope. No loop forms in weak fields in which magnetic reversal takes a long time. With increasing field strength a perminvar loop appeared first, followed by a normal and finally by a rectangular loop. The loop shape was changed in this way if the specimen is demagnetized at room temperature. When $\vec{H}$ is reversed at measured temperatures the oblique line changes in a jump-like manner to a distinct rectangular loop ($I_r/I_s \sim 0.98$), with increasing field strength. An abrupt rise of induction, forming a step in the loop, is observed if the field strength is increased in the temperature range between -100°C and -150°C, where viscosity is particularly high. The saturation magnetostriction in a 2500 oe field was measured by means of pickups glued onto them. The effect of viscosity upon magnetostriction was noticeable only in specimens no. 2 and no. 4. Magnetostriction depended largely on the method of demagnetization. As for specimens no. 1 and no. 3 (without cobalt), viscosity was lower, and the degree of magnetostriction did not depend on the method of demagnetization. For the ferrites examined, it was found that a connection must exist between the hysteresis and magnetostriction properties and magnetic viscosity. One and the same

Viscosity and hysteresis...

mechanism is probably responsible for all these properties. Uniaxial anisotropy, which was discovered in these ferrites is probably due to electron diffusion. Ion diffusion is little probable at such low temperatures. The finite diffusion rate depends on temperature and on the magnetic field strength. This explains the limitation of the temperature and field ranges in which the described phenomena are observed. The part played by cobalt has not been clarified. The unclear statement contained in the literature regarding the relationship between the perminvar effect and relaxation according to Richter was substantiated by establishing a direct relationship between the viscosity properties of the examined ferrites in static fields and their hysteresis properties in the same field range. There are 4 figures and 3 references: 1 Soviet-bloc and 2 non-Soviet-bloc.

Card 3/3

94.2200

AUTHORS: Bol'shova, K. M., Yelkina, T. A.

TITLE: Viscosity and hysteresis properties of manganese-iron ferrites with cobalt admixtures at low temperatures

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 40, no. 5, 1961, 1299 - 1301

TEXT: A study has been made of the magnetic viscosity, magnetostriction, and hysteresis properties of polycrystalline ferrite specimens of the composition $Mn_{1.75}Co_{0.05}Fe_{1.2}O_4$ at low temperatures. Measurements of the magnetization of this ferrite at low temperatures in static fields of 4 - 250 oe indicated its enormous magnetic viscosity: magnetization rises, after the constant field is applied, for 17 hours, and, after the field polarity is reversed, it is conserved in the old direction for another hour (in one case, for 174 min). No information has been found in the literature regarding this effect. Viscosity proved to be highest at temperatures from -100 to -150°C and fields not over 250 oe. On the

same ferrite, the saturation magnetostriction was measured at 2500 oe; as a consequence of the high viscosity, magnetostriction was found to depend strongly on the method of demagnetization of the specimen. The hysteresis loops were also recorded by an oscilloscope in alternating fields of 50 cps. Rectangular perminvar loops were obtained in this range. A comparison of the change of the loop shape in growing alternating fields with the magnetic viscosity in static fields shows that the character of the shape modification is closely related to the magnetic viscosity in static fields. If the time of magnetic reversal is very long, the hysteresis loop will have the form of a line; if it is short (which is the case with certain fields and temperatures; e. g., at $-125^{\circ}C$ and 43 oe), that is less than one minute, a perminvar loop is then obtained. This can be explained by considering that the ferrite concerned causes in each domain an uniaxial anisotropy under the effect of the magnetic field (with an axis of slight magnetization in direction of the vector of magnetization of the domain concerned). The appearance of uniaxial anisotropy is due to electron diffusion. Most likely, an electron exchange takes place between Mn^{2+} and Mn ions of a higher valency.

2470L
S/056/61/040/005/004/019
B102/B201

Viscosity and hysteresis properties...

Professor K. P. Belov is thanked for his interest.
There are 3 figures and 1 non-Soviet-bloc reference.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: December 29, 1960

Card 3/3

BOL'SHOVA, K.M.; YELKINA, T.A.

Determining the field induced constant of uniaxial magnetic anisotropy in Mn-Fe ferrites. Fiz. met. i metalloved. 17 no.6:819-826 Je '64. (MIRA 17:8)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.

BOL'SHOVA, K.M.; YELKINA, T.A.

Viscuous behavior of magnetization in Mn - Fe ferrites at low temperatures. Vest. Mosk. un. Ser. 3: Fiz., astron. 18 no.6:59-64 N-D '63. (MIRA 17:2)

1. Kafedra obshchey fiziki dlya biologov Moskovskogo universiteta.

ACCESSION NR: AP4023413 S/0048/64/028/003/0596/0600

AUTHOR: Bol'shova, K.M.

TITLE: Low temperature anneal in Mn-Fe ferrites [Report, Symposium on Ferromagnetism and Ferroelectricity held in Leningrad 30 May to 5 June 1963]

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v.28, no.3, 1964, 596-600

TOPIC TAGS: ferrite, magnetic lag, ferrite magnetic lag, manganese iron ferrite, manganese iron cobalt ferrite, induced uniaxial anisotropy, ferrite ion diffusion, ferrite electron diffusion

ABSTRACT: Magnetic lag was investigated at temperatures from -90°C to -160°C in ferrites having the compositions $Mn_{1.8}Fe_{1.2}O_4$ and $Mn_{1.75}Co_{0.05}Fe_{1.2}O_4$. Both single crystals and polycrystalline material were investigated. Curves of magnetization versus time were obtained at various temperatures and for various values of the magnetizing field. Relaxation times from 0.5 min to a day were observed. Activation energies were calculated from the temperature dependence of the relaxation times corresponding to 75% and 95% saturation. The activation energy for the material containing cobalt was 0.32 eV, and for the material without cobalt, 0.23 eV. Magneti-

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zation curves corresponding to various stages of magnetic annealing (from 0.5 min to 270 min) were obtained. From the magnetization curve obtained at the beginning of the anneal, and the equilibrium magnetization curve (infinite anneal), the limiting value of the induced uniaxial anisotropy constant K_u was calculated. K_u was strongly temperature dependent, having a maximum at about -135°C. The maximum value of K_u was about 9000 erg/cm^{-3} for the material containing cobalt, and only 66 erg cm^{-3} for the material without cobalt. The fall of K_u at temperatures above -135°C is easily understood in terms of L.Neel's theory of directed local order (J.Appl. Phys.30,Suppl.No.4,3S,1959). The decrease at lower temperatures is ascribed to increase of the cubic anisotropy constant. The constant ω in the expression $\epsilon = -\omega \cos^2\alpha$ for the interaction energy of the cation with the spontaneous magnetization (α is the angle between the trigonal axis and the spontaneous magnetization) was calculated from $K_u = c\omega^2/3kT$, where c is the concentration of cobalt. It was found to be 10^{-15} erg/atom. In view of the work of S.Iida (J.Phys.Soc.Japan 17,No.1,123, 1962) and A.Braginski and T.Merceron (J.Phys.Soc.Japan No.10, 1611, 1962), the behavior of the material containing cobalt is ascribed mainly to ionic diffusion of Co^{2+}. The behavior of the material not containing cobalt is ascribed to electron diffusion by electron exchange among the Mn ions of different valence on the 16 d sites. Orig.art.has: 3 formulas and 3 figures.

ACCESSION NR: AP4023413

ASSOCIATION: Fizicheskiy fakul'tet Moskovskogo gosudarstvennogo universiteta (Physics Department, Moscow State University)

SUBMITTED: 00	DATE ACQ: 10Apr64	ENCL: 00
SUB CODE: PH	NR REF SOV: 001	OTHER: 005

Card 3/3

ACCESSION NR: AP4020049 S/0032/64/030/003/0350/0351

AUTHORS: Vil'yams, O. S.; Bol'shova, N. M.; Oleynik, O. V.

TITLE: The effect of sample form on the mechanical properties of steel Kh18N10T pipes

SOURCE: Zavodskaya laboratoriya, v. 30, no. 3, 1964, 350-351

TOPIC TAGS: steel pipe, steel Kh18N10T, mechanical property, elastic property, cold rolled pipe, high temperature treatment, elongation, rupture

ABSTRACT: Tensile tests of cold rolled pipes showed that their mechanical properties depend on the sample form. This relation was studied in samples 260 mm long and in segments 6 mm wide cut from the pipes produced of steel Kh18N10T (%: 0.09 C; 18.10 Cr; 10.22 Ni; 1.17 Mn; 0.50 Si; 0.011 S; and 0.035 P). The samples were treated thermally (700-1100C) before being tested in a 30-T machine at the rate of 4 mm/min before the metal flow started, and of 20 mm/min thereafter. The results revealed that the mechanical properties of the segments were better than those of the pipe samples, except for the local elongation (measured in the necked area) which was 3-6% larger in the pipe samples than in the segments. The plastic properties (elongation) of segments increased regularly

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ACCESSION NR: AP4020049

with the increase of temperature and reached a maximum at 1050-1100C. In pipe samples it remained practically unchanged in the interval 950-1100C, whereas the grain size showed a considerable increase. This may be taken as evidence of the distorting effect of the sample form on the mechanical properties of pipe metals. The same effect was observed by measuring the variation in the wall thickness along the pipe segments and on metal strips 8 mm wide cut from the pipes. In the pipe segments the deformation was uniform along the whole length, while in the strips it was concentrated in a zone extending approximately over 1/3 of the sample length. Orig. art. has: 1 table and 2 figures.

ASSOCIATION: Nikopol'skiy yuzhnotrubnyy zavod (Nikopol' Southern Pipe Plant)

SUBMITTED: 00 DATE ACQ: 27Mar64 ENCL: 00

SUB CODE: MM NO REF SOV: 000 OTHER: 000

Card 2/2

ACC NR: AP6026675 SOURCE CODE: UR/0181/66/008/008/2313/2319

AUTHOR: Bol'shova, K. M.; Andreyeva, T. B.

ORG: Moscow State University im. M. V. Lomonosov (Moskovskiy gosudarstvennyy universitet)

TITLE: Low-temperature magnetic viscosity in single crystals of Mn-Fe-Co-ferrites with a deficiency of iron

SOURCE: Fizika tverdogo tela, v. 8, no. 8, 1966, 2313-2319

TOPIC TAGS: single crystal structure, crystal orientation, ferrite, manganese compound, iron compound, cobalt, magnetic viscosity, CRYSTAL ANISOTROPY

ABSTRACT: In connection with the hypothesis that the uniaxial anisotropy observed at low temperatures in Mn-Fe-ferrites with and without cobalt is caused by directed ordering of the ion Mn^{2+} and Mn^{3+} occurring as a consequence of electron diffusion, the authors investigated low-temperature viscosity in single crystals of Mn-Fe-ferrites with a deficiency of iron and with various contents of cobalt in static magnetic fields. Magnetic viscosity and induced anisotropy were studied on two single crystals of the composition $Mn_{1.75}Co_{0.05}Fe_{1.2}O_4$ (No. 1) and $Mn_{1.7}Co_{0.1}Fe_{1.2}O_4$ (No. 2) 60 and 50 mm long, and 7.3 and 6.6 mm in diameter, respectively. The small relaxation times at low temperatures (2 min at -80C) observed in the single crystals

Card 1/2

L 42299-66

ACC NR: AP6026675

of the ferrites and also of the low values of the activation energy (Q_1 = 0.16 eV and Q_2 = 0.32 eV) indicated that the noted magnetic viscosity cannot be ascribed either to the mechanism of separation (formation of a secondary phase oriented by the field) or to a disturbance in the balance of ions Co^{2+} owing to diffusion of ions. Apparently the noted phenomenon should be ascribed to the mechanism of electron diffusion. It is quite probable that in Mn-Fe-Co-ferrites with a deficiency of iron there is a certain quantity of trivalent ions Co^{3+} which, if true, can be redistributed in the magnetic field by electron transfer between Co^{2+} and Co^{3+} so as to minimize the total free energy and produce uniaxial anisotropy as a consequence of directed ordering. It is emphasized in conclusion that the difference between the viscosity observed and the viscosity heretofore investigated in ferrites is that it was not frozen by cooling to nitrogen temperatures. The viscosity appeared only within a limited temperature range and in weak and moderate fields. In strong fields the viscosity did not appear even at temperatures where it is maximal. The authors thank K. P. Belov for his interest in the work. Orig. art. has: 6 figures and 1 formula.

SUB CODE: 20/ SUBM DATE: 29Nov65/ ORIG REF: 002/ OTH REF: 011

Card 2/2

L 23578-66 EWT(m) JD/JG

ACC NR: AP6012904 SOURCE CODE: UR/0075/66/021/004/0411/0414

AUTHOR: Alimarin, I. P.; Bol'shova, T. A. 26 B

ORG: Moscow State University im. M. V. Lomonosov (Moskovskiy gosudarstvennyy universitet)

TITLE: Separation of traces of gallium from zinc by partition chromatography 27 27

SOURCE: Zhurnal analiticheskoy khimii, v. 21, no. 4, 1966, 411-414

TOPIC TAGS: gallium, zinc, partition chromatography, trace analysis

ABSTRACT: The behavior of gallium and zinc under dynamic conditions on a chromatographic column with fluoroplastic 4 and tributyl phosphate has been studied. A method has been developed for separating small amounts of gallium from zinc. Gallium has been quantitatively separated from zinc at ratios of 1:1 to 1:10^4 by partition chromatography on a column. Orig. art. has: 2 figures and 1 table. [Based on author's abstract] [AM]

SUB CODE: 07/ SUBM DATE: 02Apr65/ ORIG REF: 008/ OTH REF: 006/

Card 1/1 BK

ACC NR: AP7002886 (A) SOURCE CODE: UR/0189/66/000/006/0059/0063

AUTHOR: Bol'shova, T. A.; Alimarin, I. P.; Litvinchova, A. S.

ORG: Analytical Chemistry Department, (Kafedra analiticheskoy khimii Moskovskogo gosudarstvennogo universiteta Moscow State University)

TITLE: Separation of small amounts of In from Ga by partition chromatography on a column with teflon

SOURCE: Moscow. Universitet. Vestnik. Seriya II. Khimiya, no. 6, 1966, 59-63

TOPIC TAGS: indium, gallium, chromatography, teflon

ABSTRACT: A rapid method for separating trace amounts of gallium and indium by column partition chromatography on teflon has been developed. It is based on the difference in the stability of chloride and bromide complexes of these elements. The conditions of separation were determined by studying the behavior of gallium and indium in the systems hydrobromic acid solutions - tributyl phosphate (TBP) and lithium bromide solutions - TBP, the extractant used being TBP. In the system 0.8 M HBr - TBP, indium was found to be quantitatively retained on teflon when the solution (in which In:Ge = 1.1) was passed at 0.5 ml/min. Separation of indium from gallium present in the ratio of 1:800 was also satisfactory. The systems 1 M LiBr - TBP and 3 M HCl - TBP were also found to be suitable for the quantitative separation of In and Ga. Orig. art. has: 3 figures and 1 table.

SUB CODE: 07/ SUBM DATE: 13Jan66/ ORIG REF: 003/ OTH REF: 003

Card 1/1 UDC: 541.183:546.631

ACC NR: AP6028336 SOURCE CODE: UR/0293/66/004/004/0568/0573

AUTHOR: Bol'shoy, A. A.

ORG: none

TITLE: Some laws in formation of ionospheric inhomogeneities, and their connection with particle "pour-out" from outer space

SOURCE: Kosmicheskiye issledovaniya, v. 4, no. 4, 1966, 568-573

TOPIC TAGS: ionosphere, radio wave propagation, space telemetry, artificial satellite, rarefied plasma

ABSTRACT: On the basis of systematic data reduction certain observations were made concerning radio-signal fluctuations from Soviet artificial satellites. These fluctuations have a "twinkling" nature and have been recorded on all Soviet satellites put in orbit during 1958--1962. It is postulated that these fluctuations can be explained satisfactorily by relating them to diffraction of radio waves on ionospheric inhomogeneities. The frequency of these fluctuations is shown to depend on the latitude position of the satellite as well as the time of the day. A definite connection was also established between the "twinkling" and the scattering phenomenon from F-layer reflections. A careful study of cosmic particle bursts indicates some connection between the prevalence of radio-signal fluctuations and cosmic particle flux (in bursts). It is postulated that these sudden fluxes give rise to ionospheric

 UDC: 551.510.535

ACC NR: AP6028336

inhomogeneities which in turn are responsible for radio wave fluctuations in the altitude range 1000--1500 km. Orig. art. has: 7 figures and 1 formula. [04]

SUB CODE: 20/ SUBM DATE: 150ct65/ ORIG REF: 003/ OTH REF: 006

Card 2/2 fv

ACC NR: AP6009848 SOURCE CODE: UR/0413/66/000/004/0038/0038

AUTHOR: Boltyanskiy, A. A.; Pshenichnikov, Yu. V.

ORG: none

TITLE: A multicommand active control device. Class 21, No. 178883 [announced by Kuybyshev Aviation Institute (Kuybyshevskiy aviatsionnyy institut)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 4, 1966, 38

TOPIC TAGS: automatic control, grinding machine

ABSTRACT: This Author's Certificate introduces: 1. A multicommand active control device for regulating the feed on a grinder. The device contains a gauge assembly, a comparator connected to a reference voltage unit, and an activating relay system. Measurement time is reduced and electric command adjustment is provided by making the comparator in the form of a generator which sends out a control pulse when the gauge signal and the reference voltage are equal. 2. A modification of this device in which a filter is connected between the generator-comparator and the activating relay system to reduce interference.

SUB CODE: 09/ SUBM DATE: 23Jan65/ ORIG REF: 000/ OTH REF: 000

UDC: 62-523.8:621.924.1

Card 1/1

MORDOVTSEV, A.I.; BOL'SHOVA, L.P.

Effect of individual vitamins and their complexes on the conditioned reflex activity in pigeons. Vop. pit. 23 no.5:41-45 S-O '64. (MIRA 18:5)

1. Laboratoriya fizicheskikh metodov izucheniya fiziologicheskikh funktsiy (zav. - prof. M.A.Sobakin) Instituta pitaniya AMN SSSR, Moskva.

18.8300

28544 S/133/61/000/007/015/017
A054/A129

AUTHORS: Vil'yams, O. S., Bol'shova, N. M., Engineers

TITLE: Effect of heat treatment on the intercrystallite corrosion tendency of tubes made of 1Kh18N9T (1Kh18N9T) steel

PERIODICAL: Stal', no. 7, 1961, 647 - 648

TEXT: Tubes made of 1Kh18N9T steel display a tendency to intercrystallite corrosion. In order to establish the causes of this phenomenon and to eliminate it by countermeasures tests were carried out in the Nikopol'skiy yuzhnotrubnyy zavod (Nikopol' Southern Tube Plant) with cold-hardened and cold-rolled tubes of various dimensions made of 1Kh18N9T steel with a ratio of the Ti and C content varying between 4.0 and 6.9. 80-mm tube sockets were heated by steps of 50°C (at times of 25°C) from 850° to 1,300°C. The holding time was 30 min, followed by cooling on air. The heat-treated tube sockets were tested for intercrystallite corrosion according to ГОСТ (GOST) 6032-58 on samples without homogenization after stimulating annealing at 650°C for two hours. At the same time the grain size and the amount of bonded titanium were also controlled. It was found that the tendency to intercrystallite corrosion in the steel tested increased after hardening

Card 1/2

from 1,175°C and higher temperatures. The overheated metal displayed a large-grain structure and low amount of bonded titanium. By modifying the titanium and carbon content ratio from 4.0 to 6.9 the overheating temperature of the tube causing the tendency to intercrystallite corrosion was not affected to any great extent. This trend could be neutralized by repeated hardening from 1,050°C, during which the amount of bonded titanium increased 1 1/2 - 2 1/2 times. The grain size is not conclusive to determine the intercrystallite corrosion tendency of the metal. The amount of titanium has also to be considered; with a content of bonded titanium above 0.2% the metal as a rule displays sufficient resistance against intercrystallite corrosion. There are 2 tables.

ASSOCIATION: Nikopol'skiy yuzhnotrubnyy zavod (Nikopol' Southern Tube Plant)

ACCESSION NR: AR4036264 S/0137/64/000/003/I058/I058

SOURCE: Referativnyy zhurnal. Metallurgiya, Abs. 3I338

AUTHOR: Vil'yams, O. S.; Bol'shova, N. M.; Neshivaya, S. K.

TITLE: Concerning the carburization of Kh18N10T stainless steel

CITED SOURCE: Sb. Proiz-vo trub. Vyp. 11. M., Metallurgizdat, 1963, 103-106

TOPIC TAGS: Stainless steel carburization, intercrystalline corrosion, steel lubrication, steel lubricant

TRANSLATION: An investigation was made into the effect of the composition of the lubricant remaining on the surface of pipes after cold deformation and of the temperature and duration of soaking during heat treatment on the process of carburization and tendency toward intercrystalline corrosion (TIC) of pipes made of 1Kh18N10T steel. The lubricant used consisted of graphite with machine oil, graphite with water glass, and talc with castor oil. Prior to the heat treatment, the specimens, 80 mm long, were coated with the lubricant and placed in small cylinders

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ACCESSION NR: AR4036264

smeared with a mixture of clay and asbestos. After being heated at 1100° for 30 min and cooled in air, the standard specimens were tested for TIC, with preliminary "inducing" tempering at 650°. All the specimens subjected to heat treatment in contact with C-containing lubricants acquired a TIC. The greatest TIC was caused by the mixture of graphite and machine oil, and the smallest by the mixture of talc and castor oil. The damage done by intercrystalline corrosion is greater the greater the depth of the carburized layer. A study of the depth of the carburized layer under conditions of saturation with C in the solid carburizer between 700 and 1100° showed that the depth varies from 0.016 mm at 700° to 0.81 mm at 1100° (soaking time, 30 min). The TIC was observed after soaking for 90 min at 750°. A second heat treatment of the carburized specimens for the purpose of eliminating the TIC is not advisable, as it only causes the depth of the carburized layer to increase. M. Shapiro.

DATE ACQ: 17Apr64 SUB CODE: ML ENCL: 00

Card 2/2

VIL'YAMS, O.S.; BOL'SHOVA, N.M.; OLEYNIK, O.V.

Effect of the type of the sample on the mechanical properties indices of pipes made from 1810T steel. Zav.lab. 30 no.3: 350-351 '64. (MIRA 17:4)

1. Nikopol'skiy yuzhnotrubnyy zavod.

(N) L 12087-66 EWT(m)/EWA(d)/T/EWP(t)/EWP(k)/EWP(z)/EWP(b)/EWA(c) IJP(c)

ACC NR: AP6000610 SOURCE CODE: UR/0129/65/000/012/0040/0043

MJW/JD/HW

AUTHOR: Vil'yams, O. S.; Bol'shova, N. M.; Koval', M. Ya.

ORG: Nikopol' Southern Tube Plant (Nikopol'skiy yuzhnotrubnyy zavod)

TITLE: Effect of temperature and rate of heating on the grain size of Kh18N12T steel

SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 12, 1965, 40-43

TOPIC TAGS: grain size, steel, metal tube, titanium, heat treat furnace/ Kh18N12T steel

ABSTRACT: Annular specimens of Kh18N12T steel (0.08% C, 1.41% Mn, 0.66% Si, 0.017% P, 0.007% S, 17.85% Cr, 11.39% Ni, 0.50% Ti), cut from cold-rolled boiler superheater tubes, were heated at 800-1200°C, on increasing the temperature by 50-100°C at a time, for 30 min, and air-cooled, with the object of dertermining the conditions under which grain homogeneity can be maximized. Experiments with the use of different furnaces (muffle, induction, box, continuous roller) showed that the most suitable furnace for this purpose is the continuous roller furnace, (furnace length 10 m, traveling rate of tubes 0.4 m/min, temperature 1200-1230°C). The higher the heating rate, the higher is the temperature needed to obtain a roughly identical grain size. In addition, the effect of Ti on grain size was investigated on specimens of work-hardened tubes from two melts and compared with specimens of Ti-free Kh18N10 steel;

Card 1/2 UDC: 621.785.16:620.186.5:669.14.018.84

L 12087-66

ACC NR: AP6000610

it was found that in Ti-containing steel the grain size decreases with decreasing temperature and increases with increasing temperature at a faster rate than in Ti-free steel. In addition, given the same heating temperatures, the microstructure of Kh18N12T steel containing 0.44% Ti becomes more coarse-grained than the microstructure of the same steel containing 0.65% Ti. This is attributable to the retarding effect of titanium carbides on grain growth. As the titanium carbides become dissolved at elevated temperatures, an intensive grain growth sets in so that then, at temperatures above 1150°C, the grain size in Ti-containing steel (Kh18N12T) becomes much larger than in Ti-free steel (Kh18N10). Orig. art. has: 2 tables, 5 figures.

SUB CODE: 11, 13, 20/ SUBM DATE: none/ ORIG REF: 003/ OTH REF: 000

Card 2/2

Conditions affecting the microelements of hay (cobalt, manganese, and copper). T. A. Bol'shova. *Uchenye Zapiski Vitebsk. Vet. Inst.* 13, 92-8(1954); *Referat. Zhur. Khim., Biol. Khim.* 1955, No. 5427.—The content of Co, Mn, and Cu in clover hay is greater than in cereal-grass hay. Hay made from young grasses and quickly dried contains more Mn, but the content of Co and Cu is greater in hay made from more mature grasses. B. S. Levine

AUTHORS: Starobinets, G. L., Bol'shova, T. A. 75-13-2-15/27

TITLE: Determination of Normal Hydrocarbons in Paraffins by Means of the Adsorption Analysis (Opredeleniye uglevodorodov normal'nogo stroyeniya v parafinakh metodom adsorbtsionnogo analiza)

PERIODICAL: Zhurnal Analiticheskoy Khimii, 1958, Vol. 13, Nr 2, pp. 235-241 (USSR)

ABSTRACT: 1) The authors investigated the adsorption of low boiling fractions of benzene solutions of normal hydrocarbons on urea. These normal hydrocarbons were isolated from commercial paraffins. The obtained experimental data are reproduced by the Langmuir isothermal adsorption curve. The adsorption coefficients and the limiting values of the adsorption increase with increasing mean molecular weight of the fractions. 2) The isothermal adsorption curves on urea were investigated for a number of commercial paraffins, but also for paraffins, which were obtained from solutions of isoparaffins in benzene, toluene, and carbon tetrachloride by purification. On that occasion the concentration of the paraffine was kept constant, while urea was added in increasing quantities (up to 12 g on 1 g of paraffin). The isothermal curves of the purified

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paraffins end in clearly expressed horizontal lines, which correspond to the complete adsorption of the dissolved paraffin. The isothermal curves of the commercial paraffins, on the contrary run out on the same conditions into lines, which are inclined towards the abscisse and which indicate the fact that the adsorption process in this case represents the sum of 2 processes: The adsorption of the normal hydrocarbons and the adsorption of the iso-hydrocarbons. It was shown that the ordinate, which was obtained by extrapolation of the inclined final line on an urea content of zero, represents a measure for the percentage of normal hydrocarbons in the paraffin which is to be examined. The result of the analysis, obtained this way, is independent of the nature of the solvent. This fact proves the reliability of the method.

3) The methods, described in publications, for the determination of normal hydrocarbons by means of urea in general give too low results. These methods correspond in their essence to the investigation of only one point of the isothermal curve, while a unique conclusion on the percentage of normal hydrocarbons in commercial samples is possible only because of the examination of the whole isothermal

adsorption curve, which is concluded from the results of this paper.
4) This method, worked out by the authors, is simple in an experimental respect and can be performed with small substance quantities. It is based upon the analysis of the solutions, which are in equilibrium, and therefore it is free from errors, which are caused by transfer, washing out, and decomposition of the complex compound of urea with the hydrocarbons.
There are 5 figures, 1 table, and 22 references, 11 of which are Soviet.

ASSOCIATION: Belorusskiy gosudarstvennyy universitet im. V. I. Lenina, Minsk (Minsk, Belorussian State University imeni V. I. Lenin)

SUBMITTED: May 31, 1957

1. Methanes--Analysis 2. Hydrocarbons--Adsorption 3. Hydrocarbons --Determination

BOL'SHOVA, T.A.; STAROBINETS, G.L.

Partition chromatography of hydrocarbons from solid petroleum paraffins on carbamide. Khim. i tekh. topl. i masel 6 no.5:17-21 My '61. (MIRA 14:5)

1. Belorusskiy gosudarstvennyy universitet im. V.I. Lenina.
(Hydrocarbons—Analysis) (Urea)

3(8)

PHASE I BOOK EXPLOITATION SOV/2263

USSR. Glavnoye upravleniye gidrometeorologicheskoy sluzhby

Sbornik rabot po sinoptike, Nr. 2 (Collection of Articles on Synoptics, nr 2) Leningrad, Gidrometeoizdat, 1958. 157 p. 1,200 copies printed.

Ed. (Title page): G. D. Zubyan; Ed. (Inside book): R. V. Grosman; Tech. Ed.: A. E. Sergeyev.

PURPOSE: This collection of articles is intended for meteorologists.

COVERAGE: The book contains 12 abridged articles written by synoptic meteorologists of the Weather Bureau, the Gidrometbyuro, and the AMSG (Air Weather Station of the Civil Air Fleet). All articles deal with the local features in the development of atmospheric processes and weather. There are no personalities mentioned. There are 35 references: 34 Soviet and 1 German.

TABLE OF CONTENTS:

AVAILABLE: Library of Congress

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BOL'SHOVA, V.G.

Frosts in Gorkiy Province. Sbor.rab.po sinop. no.2:134-158 '58. (MIRA 12:6)

1. Gor'kovskoye byuro pogody.
(Gorkiy Province--Frost)

AUTHOR: Bol'shoy, V.A., Engineer SOV/110-59-6-15/24

TITLE: Some Possibilities of Using Speed-Indicating Relay Type RKS (O nekotorykh vozmozhnostyakh primeneniya rele kontrolya skorosti tipa RKS)

PERIODICAL: Vestnik elektropromyshlennosti, 1959, Nr 6, p 65 (USSR)

ABSTRACT: Induction relay type RKS is used for speed indication and control in the range 900 to 3000 rpm. The rotor of the relay is coupled to the shaft of the motor to be controlled; the stator of the relay is free to rotate a little, so as to operate contacts as shown in the figure. Rotation of the magnetised rotor sets up a torque in the stator which is proportional to the rotor speed. As the stator turns an arm presses on contact springs opening a normally-closed contact and closing a normally-open one. A feature of the relay is that the contacts are not continually opening and closing because the normally-closed contact opens an appreciable time before the normally-opened contact closes. Thus there is a range of speed in which the moving contact is either in the neutral zone or is firmly over one way or the other. The relay is adjusted by altering the tension of the springs.

Some Possibilities of Using Speed-Indicating Relay Type RKS

Tests showed that the relay operates over the speed range of 100 to 475 rpm. At a speed somewhere between 450 and 500 rpm, the normally-opened contact of the relay is firmly closed. Thus at speeds above 500 rpm the relay can only indicate that the motor is running but cannot measure its speed. Test results are tabulated for relays regulated for three speeds of 160, 225 and 450 rpm. It will be seen that the operation of the relay is unreliable within a speed range of 50 to 80 rpm. To avoid the transmission of multiple signals at low speeds it is advisable to use in the signalling circuit a relay with a delay time of between 1.5 and 2 sec. There is 1 figure and 1 table.

Card 2/2

1. BOLSHTEYN, I. I.

2. USSR (600)

3. Wood Pulp Industry

4. Modern high-quality sulfite pulp mill.
Bu. prom. 27 No. 11 - 1952.

9. Monthly List of Russian Acessions, Library of Congress, February, 1953. Unclassified.

BOLSHTYANSKIY, M.P.

Experimental investigation of stresses in an earth foundation. Izv. Sib. otd. AN SSSR no. 11:29-33 '60. (MIRA 14:1)

1. Transportno-energeticheskiy institut Sibirskogo otdeleniya AN SSSR.

(Foundations) (Strains and stresses)

BOLSHTYANSKIY, M.P.

Temporary stresses in compacted ground. Izv.Sib.otd.AN SSSR no.5: 41-45 '61. (MIRA 14:6)

1. Transportno-energeticheskiy institut Sibirskogo otdeleniya AN SSSR, Novosibirsk.
(Soil mechanics)

BOLSHTYANSKIY, M.P.

Experimental study of stresses in a heterogeneous loose medium. Osn., fund. i mekh. grun. 4 no.6:11-13 '62. (MIRA 16:1)
(Soil mechanics)

BOLSHTYANSKIY, M.P.

Stresses and shifts in a thawing soil foundation supporting a plate. Izv. SO AN SSSR no.2 Ser. tekh. nauk no.1:27-32 '63. (MIRA 16:8)

1. Transportno-energeticheskiy institut Sibirskogo otdeleniya AN SSSR, Novosibirsk.
(Soil mechanics) (Thawing)

BOLSHTYANSKIY, M.P.; LINTSER, A.V.; SOKOLOV, Yu.V.

Experimental study of stresses in a two-layer granite foundation. Izv. SO AN SSSR no.10 Ser. tekh. nauk no.3:136-139 '63. (MIRA 17:11)

1. Transportno-energeticheskiy institut Sibirskogo otdeleniya AN SSSR, Novosibirsk.

BOL'SHUKHIN, A.N., inzh.

Laying cold asphalt concrete pavements at low temperatures.
Trudy MADI no.23:144-152 '58. (MIRA 12:1)
(Pavements, Concrete--Cold weather conditions)

YAKUSHEV, V.I., inzh.; BOL'SHUKHIN, I.D., inzh.

Using anchors for ship checking during launching.
Sudostroenie 26 no.3(209):54-57 Mr '60. (MIRA 14:11)
(Anchors)
(Ships--Launching)

SOKOLOV, Ya.A., kand. tekhn. nauk; KOL'SHUKHIN, V.I.; YAKOPSON, T.S.

Concerning salt spots and faced ceramic products. Stroi. mat. 9 no.7:31-33 Jl '63. (MIRA 16:11)

BOL'SHUKHIN, V.P. (Leningrad)

"Inorganic chemistry in questions and answers" by Erich Tillo. Reviewed by V.P. Bol'shukhin. Khim. v shkole 17 no.1:90-91 Ja-F '62. (MIRA 15:1)
(Chemistry, Inorganic--Study and teaching)
(Tillo, Erich)

SOKOLOV, Ya.A., kand. tekhn. nauk; YAKOPSON, T.S., inzh.; BOL'SHUKHIN, V.P., inzh.

Using barite wastes for the binding of fusible salts in clays. Stek.i ker. 22 no.10:35-37 O '65. (MIRA 18:12)

1. Leningradskiy inzhenerno-stroitel'nyy institut (for Sokolov, Yakopson). 2. Novosibirskiy inzhenerno-stroitel'nyy institut (for Bol'shukhin).

BOL'SHUKHINA, Yu. A.

Catalytic preparation of ketones from a mixture of acetic acid and n-butyl alcohol. B. N. Dolgov, G. V. Golodnikov, and Yu. A. Bol'shukhina (State Univ., Leningrad). *Zhur. Obshchei Khim.* [illegible] (1957).—Passage of AcOH-BuOH over Cr-Mn catalyst (*cf.* Mazurek, *Dissertation*, Leningrad State Univ., 1949) at 380–500° gave up to 20% MeCOPr along with 6% Me_2CO and 20% Pr_2CO. Possible schemes of the formation of products are briefly discussed. Formation of MeCOPr probably occurs by condensation of AcH with PrCHO or Me_2CO. The results for various temps. and reactant proportions (1:1 to 5:1) are tabulated.

G. M. Koselapoff

Distr: 4E4j

BOL'SHUN, Ye. V., ISHEZHETSKIY, S. Ya., MYASNIKOV, I. A.

"Formation of Hydrazine in Liquid Ammonia Due to Fast Electrons, in the collection, Effect of Ionizing Radiation on Inorganic and Organic Chemistry Systems, Moscow, Izd-vo AN SSSR, 1958,416 pp.

Coll. of articles represents contributions of Soviet scientsts in the field of Radiochemistry, completed in years 1951-56 at Inst. Phys, Chem, AS USSR, Inst. of Physics and Chem. im. L. Ya. Karpov, Moscow State Univ, and 1m other institutions.

Abst: the formation of hydrazine due to fast electrons leads to a stationary hydrazine concentration conditioned by the balancing of the rates of direct and inverse reactions. The reaction efficiency is 1 - 1.2 molecules of hydrazine per 100 ev. 2 tables, 1 fig, , 6 ref, (3 Sov, 3 English)

MYASNIKOV, I.A.; BOL'SHUN, Ye.V.; GUTMAN, E.Ye.

Mechanism of radical adsorption on semiconductors and the desorption of radicals from hot walls. Kin. i kat. 4 no.6: 867-877 N-D '63. (MIRA 17:1)

1. Fiziko-khimicheskiy institut imeni L.Ya. Karpova.

ACCESSION NR: AP4008168 S/0195/63/004/006/0867/0877

AUTHOR: Myasnikov, I. A.; Bol'shun, Ye. V.; Gutman, E. Ye.

TITLE: Mechanism of radical adsorption on semiconductors and desorption of radicals from a hot wall.

SOURCE: Kinetika i kataliz, v. 4, no. 6, 1963, 867-877

TOPIC TAGS: zinc oxide, zinc oxide film, zinc oxide electric conductivity, electric conductivity kinetics, alkyl radical, radical adsorption, radical chemisorption, radical desorption, hot wall emission, ketones photolysis, ketones pyrolysis, free radical, free radical reaction mechanism, free radical reaction kinetics

ABSTRACT: The electric conductivity of ZnO films under stationary conditions and the kinetics of electric conductivity for chemisorption and desorption of alkyl radicals were investigated. The relationship of the disappearance of free

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ACCESSION NR: AP4008168

radicals in a g ven volume, the adsorption of radicals on the surface and the conductivity (sigma) of the film, based on the light intensity I and the pressure of the gas forming the radicals (concentration of molecules M) is shown: At low intensity and high film temperature (low radical concentration on the surface), the relationship is first order in the volume and on the surface (1) $a \sim I \cdot [M]$ where a is $\frac{\Delta\sigma \cdot \sigma_0}{\sigma_1}$. At higher concentrations or intensities, relationships (2) a $\sim \sqrt{I[M]}$ or (3) a $\sim \sqrt[4]{I[M]}$ obtain, i.e., it is first order in the volume and 2nd order on the surface, or vice versa (2), or it is second order in both locations (3). The kinetics of the conductivities of the film during adsorption and desorption of radicals, as derived from experimental data obtained by photolysis and pyrolysis of ketones, compare with these principles. A new variant of the method for determining relative concentration of radicals is proposed. This is based on measuring the starting rate of change of the electric conductivity (at the instant of radical appearance or at a change in their concentration). This determination can be conducted automatically in 1-10 seconds. A new phenomenon was observed - the desorption of radicals,

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ACCESSION NR: AP4008168

on heating, from walls of a glass or quartz vessel in which the radicals were first found. "The authors thank Sr. laboratory worker A. P. Sy*soyeva who participated in the experimental part of the work." Orig. art. has: 8 figures and 20 equations.

ASSOCIATION: Fiziko-khimicheskoy institut. im. L. Ya. Karpova ('Physical-Chemical Institute)

SUBMITTED: 29May62 DATE ACQ: 09Jan64 ENCL: 00

SUB CODE: PH, CH NO REF SOV: 006 OTHER: 005

Card 3/3

MYASNIKOV, I.A.; BOL'SHUN, Ye.V. Prinimala uchastiye KOZHEMYAKIN, L.P.

Methods used in investigations of the heterogeneous recombinati of free radicals and of their interaction with the adsorbed l yer. Kin. i kat. 6 no. 6:99701002 N-D '65 (MIRA 19:1)

1. Fiziko-khimicheskiy institut imeni Karpova. Submitted May 25, 1964.

9.4300 (3203,1043,1143)
26.1531

S/020/60/135/005/031/043
B004/B075

AUTHORS: Myasnikov, I. A. and Bol'shun, Ye. V.

TITLE: Adsorption of Alkyl Radicals on Oxide Semiconductors

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 135, No. 5, pp. 1164-1167

TEXT: In a previous paper (Ref. 1), the first-mentioned author has shown that the adsorption of atoms and radicals on the surface of oxide-semiconductor films, e.g., n-type ZnO, causes a change of the conductivity of the semiconductor. The present paper quantitatively investigated the relationship between the radical concentration and the ZnO conductivity. By means of a ПРК-2 (PRK-2) lamp, acetone vapor was photolyzed in a quartz cell having a mobile quartz frame, onto which the ZnO film (thickness about 5 μ) was applied. The partial pressure of acetone vapor amounted to 0.1 - 100 mm Hg, the pressure of the inert gas (He, Ne, Ye) to 1 - 200 mm Hg. Temperature was 200 - 300°C. The distance between ZnO and the aperture, through which the photolytically generated CH_3 radicals entered, could be varied between 1-15 cm by means of the mobile frame. The difference

Adsorption of Alkyl Radicals on Oxide Semiconductors

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$\Delta\sigma = \sigma_0 - \sigma$ was measured (σ_0 = initial conductivity). $\sigma = \text{const}/\sqrt{n}$ (3) was obtained for σ as a function of radical concentration n, $\sigma = \text{const}/\sqrt[4]{I}$ (5) as a function of the intensity I of the light absorbed. In Fig. 2 the validity of equation (5) is experimentally confirmed. When the partial pressure of acetone was constant, ZnO conductivity linearly increased with increasing pressure of neon. On the strength of these results the authors draw the conclusions that recombination processes and the reactivity of radicals and other free particles of various gases can be investigated by means of this method. Different alcohol radicals have different effects on the conductivity of the semiconductor, so that they can be identified in very low concentrations by means of the method described. The authors thank Professor S. Ya. Pshezhetskiy for discussions. There are 4 figures and 7 references: 2 Soviet, 4 US, and 1 German.

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova (Physico-chemical Institute imeni L. Ya. Karpov)

PRESENTED: June 22, 1960, by S. S. Medvedev, Academician

SUBMITTED: June 17, 1960

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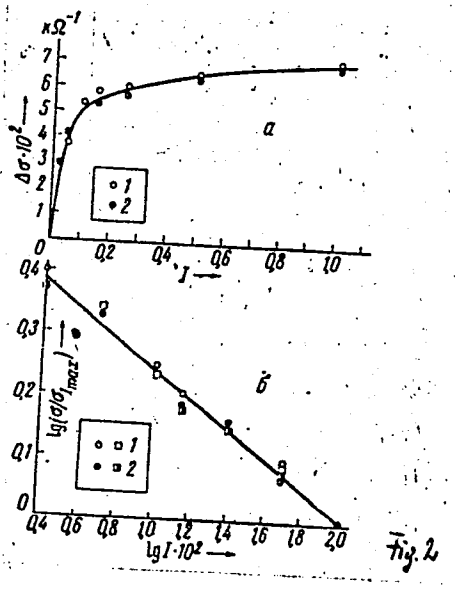

Fig. 2

Legend to Fig. 2: ZnO conductivity as a function of light intensity in the presence of photolyzed acetone; t = 300°C; $P_{acetone}$ = 5 mm Hg. a) $I = f(\Delta\sigma)$, 1: with increasing I, 2: with decreasing I; b) in a logarithmic representation for two films of different thicknesses.

Card 3/3

BOL'SHUNOV, Ya.V.

Negative induction in the process of learning verbal material.
Vop.psikhol. 5 no.5:79-86 S-O '59. (MIRA 13:3)

1. Kustanayskiy gosudarstvennyy pedagogicheskiy institut.
(Learning, Psychology of)

GAVRANEK, V.V.; FUKS, M.Ya.; BOL'SHUTKIN, D.N.

X-ray analysis of cavitation erosion in metals. Fiz.met. i metalloved. 1 no.3:494-499 '55. (MLRA 9:6)

1.Khar'kovskiy politekhnicheskiy institut imeni V.I.Lenina.
(Cavitation) (Metallography)